

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re PATENT APPLICATION of

Tushar Deepak CHANDRA	Art Unit:	2167
Serial No: 10/673,755	Examiner:	M.D. Pham
Filed: September 29, 2003	Confirmation No.:	1473
For: TECHNIQUE FOR PROVISIONING STORAGE FOR SERVERS IN AN ON-DEMAND ENVIRONMENT	Attorney Ref.:	ARC920030059US1

**APPEAL BRIEF**

**MAIL STOP APPEAL BRIEF - PATENTS**

Commissioner For Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sirs:

This Appeal Brief is submitted in connection with the Notice of Appeal submitted March 7, 2008, and the final Office Action dated December 7, 2007, in the above-captioned patent application.

**REAL PARTY IN INTEREST**

The real party in interest is International Business Machines Corporation.

**RELATED APPEALS AND INTERFERENCES**

There are no appeals or interferences that are related to the present appeal.

## **STATUS OF CLAIMS**

Claims 1-7, 9-18 and 20-22 are pending and are finally rejected in the above-captioned patent application. Claims 8 and 19 have been canceled.

Claims 1-7, 9-18 and 20-22 are the subject of this appeal.

## **STATUS OF AMENDMENTS**

All amendments made to the claims have been entered. There are no amendments of the claims that have not been entered.

## **SUMMARY OF CLAIMED SUBJECT MATTER**

There are four (4) independent claims that are the subject of this appeal, independent claims 1, 9, 12 and 20.

In the following paragraph, the references to the subject matter of independent claims 1, 9, 12 and 20 refer to locations in the originally filed patent application and the replacement sheets of drawings.

Independent claim 1 is directed to a method of allocating storage to a system user of a storage area network (on-demand server system 100, paragraph [16], lines 2-4; on-demand server system 400, paragraph [23], lines 2-5; and Figures 1 and 4). The storage area network includes storage (data storage devices 105, paragraph [16], lines 6-9; data storage devices 405, paragraph [23], lines 8-9; and Figures 1 and 4) and a plurality of servers (web/application servers 101, paragraph [16], lines 2-4, web/application servers 401, paragraph [23], lines 5-6; and Figures 1 and 4). The method comprises identifying at least one master storage image that is stored in the storage of the storage area network and that will be associated with a system user when a server is allocated to the system user (paragraph [19], lines 2-5; paragraph [24], lines 1-3; and Figure 2, step 201; and Figure 3, step 301). At least one identified master storage image is preconfigured with data and state information that is associated with a system user (paragraph [19], lines 5-7). A plurality of replicas of each identified master storage image is generated prior to at least one server being allocated to the system user (paragraph [19],

lines 7-8; and Figure 2, step 202). A selected replica of the plurality of replicas of the master storage image is allocated to each server allocated to the system user (paragraph [19], lines 9-10; and Figure 2, step 203).

Independent claim 9 is directed to a method of allocating storage between system users of a storage area network (on-demand server system 100, paragraph [16], lines 2-4; on-demand server system 400, paragraph [23], lines 2-5; and Figures 1 and 4). The storage area network includes storage (data storage devices 105, paragraph [16], lines 6-9; data storage devices 405, paragraph [23], lines 8-9; and Figures 1 and 4) and a plurality of servers (web/application servers 101, paragraph [16], lines 2-4, web/application servers 401, paragraph [23], lines 5-6; and Figures 1 and 4) accessing the storage. The method comprises identifying at least one master storage image that is stored in the storage of the storage area network and that will be associated with a system user (paragraph [19], lines 2-5; paragraph [24], lines 1-3; and Figure 2, step 201; and Figure 3, step 301), such that a selected master storage image including both a read-only data portion and a writable data portion (paragraph [19], lines 5-7). A read-only copy of the read-only data portion of the selected master storage image is generated (paragraph [24], lines 4-5; and Figure 3, step 302). The read-only data copy of the read-only data portion of the selected master storage image is shared across the plurality of servers (paragraph [24], lines 4-5; and Figure 3, step 302). The read-only copy of the read-only data portion of the selected master storage image is allocated to each server allocated to the system user (paragraph [24], lines 8-10; and Figure 3, step 303). A separate writable data volume of the writable data portion of the selected master storage image is allocated to each server allocated to the system user (paragraph [24], lines 10-12; and Figure 3, step 304).

Independent claim 12 is directed to a storage area network (on-demand server system 100, paragraph [16], lines 2-4; on-demand server system 400, paragraph [23], lines 2-5; and Figures 1 and 4). The storage area network comprises a plurality of servers (web/application servers 101, paragraph [16], lines 2-4, web/application servers 401, paragraph [23], lines 5-6; and Figures 1 and 4) coupled to a storage (data storage devices 105, paragraph [16], lines 6-9; data storage devices 405, paragraph [23], lines 8-9; and Figures 1 and 4). Additionally, the

storage area server comprises a storage provisioning device (SAN-attached storage controllers 104, paragraph [16], lines 7-9; paragraph [23], lines 9-11; Figures 1 and 4) coupled to the servers. The storage provisioning device allocates at least one server and a portion of the storage to a system user (paragraph [19], lines 2-5; paragraph [24], lines 1-3; and Figure 2, step 201; and Figure 3, step 301). The storage provisioning device identifies at least one master storage image that is stored in the storage and that will be associated with a system user when a server is allocated to the system user (paragraph [19], lines 2-5; paragraph [24], lines 1-3; and Figure 2, step 201; and Figure 3, step 301). At least one master storage image is pre-configured with data and state information that is associated with a system user (paragraph [19], lines 5-7). The storage provisioning device further generates a plurality of replicas of each identified master storage image prior to at least one server being allocated to the system user (paragraph [19], lines 7-8; and Figure 2, step 202). The storage provisioning device allocates a selected replica of the plurality of replicas of the master storage image to each server allocated to the system user (paragraph [19], lines 9-10; and Figure 2, step 203).

Independent claim 20 is directed to a storage area network (on-demand server system 100, paragraph [16], lines 2-4; on-demand server system 400, paragraph [23], lines 2-5; and Figures 1 and 4). The storage area network comprises a plurality of servers (web/application servers 101, paragraph [16], lines 2-4, web/application servers 401, paragraph [23], lines 5-6; and Figures 1 and 4) coupled to a storage (data storage devices 105, paragraph [16], lines 6-9; data storage devices 405, paragraph [23], lines 8-9; and Figures 1 and 4). A storage provisioning device is coupled to the servers and allocates at least one server and a portion of the storage to a system user (paragraph [19], lines 2-5; paragraph [24], lines 1-3; and Figure 2, step 201; and Figure 3, step 301). The storage provisioning device identifies at least one master storage image that is stored in the storage of the storage area network and that will be associated with a system user (paragraph [19], lines 2-5; paragraph [24], lines 1-3; and Figure 2, step 201; and Figure 3, step 301). A selected master storage image includes both a read-only data portion and a writeable data portion (paragraph [19], lines 5-7). The storage provisioning device further generates a read-only copy of the read-only portion of the selected master storage image

(paragraph [24], lines 4-5; and Figure 3, step 302) and shares the read-only copy of the read-only portion of the selected master storage image across the plurality of servers (paragraph [24], lines 4-5; and Figure 3, step 302). The storage provisioning device allocates the read-only copy of the read-only portion of the selected master storage image to each server allocated to the system user (paragraph [24], lines 8-10; and Figure 3, step 303) and allocates a separate writable data volume of the writable data portion of the selected master storage image to each server allocated to the system user (paragraph [24], lines 10-12; and Figure 3, step 304).

## **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 1-7 and 12-18 stand finally rejected under 35 U.S.C. § 103(a) as unpatentable over Watt, U.S. Patent Application Publication No. 2003/0126202 A1, further in view of Sheets et al. (Sheets), U.S. Patent No. 6,819,905.

Claims 9 and 20 stand finally rejected under 35 U.S.C. § 103(a) as unpatentable over Watt in view of Haun et al. (Haun), U.S. Patent No. 6,751,058.

Claims 10, 11, 21 and 22 stand finally rejected under 35 U.S.C. § 103(a) as unpatentable over Watt in view of Haun, and further in view of Sheets.

## **ARGUMENT**

### **I. The Rejection Based On Watt In View Of Sheets**

Applicants respectfully traverse the rejection of claims 1-7 and 12-18 as unpatentable over Watt in view of Sheet. Applicants respectfully submit that the subject matter according to any of claims 1-7 and 12-18 is patentable over Watt in view of Sheets. In particular, Applicants respectfully submits that the Examiner has not presented a convincing line of reasoning as to why an artisan would have found the subject matter of claims 1-7 and 12-18 to have been obvious in light of the teachings of Watt and Sheets.

“To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the

claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). (See, also, MPEP §§ 706.02(j) and 2144.)

**A. The Examiner Has Not Stated That Either Watt Or Sheets Expressly Or Impliedly Suggest the Claimed Subject Matter**

1. In the present rejection, the Examiner does not state that either Watt or Sheets expressly or impliedly suggest the subject matter of claims 1-7 and 12-18.

2. Consequently, in order to support the present rejection, the Examiner’s line of reasoning must be convincing as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of Watt and Sheets.

**B. The Examiner Has Not Established A Convincing Line Of Reasoning As To Why An Artisan Would Have Found The Claimed Subject Matter To Have Been Obvious In Light Of The Teachings Of Watt And Sheets**

1. For both independent claims 1 and 12, the Examiner’s stated line of reasoning is:

“Both Watts and Sheets are within the same field of endeavor as the application, namely dynamic allocation of servers. Watts suggests configuring images associated with a user. Sheets suggests pre-configuring at least one identified server image with data and state information associated with a user. It would have been obvious to apply Sheets disclosure to Watts to improve security by keeping the data separate from each user, and further to provide a method of indicating states of servers in order to improve allocation techniques. Therefore [sic], improving performance of server allocation as a whole, and further improving security as the unique data can be kept separate by precluding

intentional or unintentional access to data between different customer accounts.”

(See final Office Action dated December 7, 2007, page 4, lines 6-14.)

2. Applicants respectfully submit that the major premise of the Examiner’s stated line of reasoning (i.e., syllogism) supporting the present rejection is that “Watts suggests configuring images associated with a user.”

3. Applicants respectfully submit that the minor premise of the syllogism is “Sheets suggests pre-configuring at least one identified server image with data and state information associated with a user.”

4. The conclusion of the Examiner’s syllogism is:  
“It would have been obvious to apply Sheets disclosure to Watts to improve security by keeping the data separate from each user, and further to provide a method of indicating states of servers in order to improve allocation techniques. Therefore [sic], improving performance of server allocation as a whole, and further improving security as the unique data can be kept separate by precluding intentional or unintentional access to data between different customer accounts.”

5. Applicants respectfully submit that the Examiner’s conclusion does not follow from the two premises that the Examiner uses to arrive at the stated conclusion.

6. Applicants respectfully submit that it would seem that if the Examiner’s syllogism supporting the present rejection were proper, the conclusion would relate to something like configuring images associated with a user or pre-configuring a server image with data and state information associated with a user because both the major and minor premises relate to configuring or pre-configuring images.

7. Instead, the Examiner’s conclusion relates to improving security by keeping the data separate from each user, improving allocation techniques, improving performance of server allocation as a whole, and improving security by precluding intentional or unintentional access to data between different customer accounts.

8. Thus, the Examiner's conclusion does not follow from the stated premises because it does not relate to the Examiner's two premises stated on the record.<sup>1</sup>

9. Further, Applicants note that the Examiner has cited portions of Sheets as an apparent basis for the stated minor premise of the syllogism. In particular, the Examiner cites column 7, lines 1-5, the Abstract, lines 14-20, and column 15, lines 8-17, of Sheets as disclosing "pre-configuring at least one identified server image with data and state information associated with a user."

10. Applicants respectfully submit that the Examiner mischaracterizes the disclosure of Sheets at column 15, lines 8-17, by morphing the term "reconfiguring" to the term "preconfiguring."

11. Applicants respectfully submit that, in actuality, column 15, lines 8-17, of Sheets states:

"One of the significant advantages of the present invention is that the process of reconfiguring servers from one administrative group 52-a to a second administrative group 52-b will wipe clean all of the state associated with a particular customer account for the first administrative group from the reallocated server 46' before that server is brought into service as part of the second administrative group 52-b. This provides a natural and very efficient security mechanism for precluding intentional or unintentional access to data between different customer accounts."

12. Applicants respectfully submit that nothing in this cited portion of Sheets refers to "preconfiguring."

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<sup>1</sup> In the previous Office Action (Office Action dated June 21, 2007), the conclusion to the Examiner's syllogism that has been proffered as support for the rejection of claims 1-7 and 12-18 as unpatentable over Watt in view of Sheets et al. was demonstrated to not follow from the stated major and minor premises. For the present rejection, it is interesting to note that the Examiner's proffered syllogism in support of obviousness of the claimed subject matter has been reworked in view of the demonstration of the previous faulty conclusion. Accordingly, Applicants respectfully submit that the Examiner's action of reworking the syllogism strongly suggests that (1) the previous syllogism was, in actuality, baseless, and that (2) the present syllogism is nothing more than a recasting of the net in hope of chancing upon a convincing line of reasoning in support of the rejection based on Watt and Sheets.



13. Thus, the Examiner's stated minor premise is not even a logical conclusion of the portions of Sheets on which the Examiner relies as the minor premise.

14. Applicants respectfully submit that not only is the Examiner's conclusion to the syllogism faulty, but the minor premise of the syllogism is without basis, thereby making unconvincing the Examiner's line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

15. Regarding the Examiner's statements on the record relating to improving security and being a natural and very efficient security mechanism, Applicants respectfully submit that Watt discloses security considerations that would cause one of ordinary skill in the art to not consider the disclosure of Sheets for producing any "improvement" in the Watt invention relating to security. In particular, Watt discloses in paragraph [0020] that the Watt invention provides improved infrastructure security and that "[m]any network security issues are eliminated by automatically configuring the network infrastructure when a server is provisioned *to restrict access to just those resources within the data center that the server needs to perform its function.*" (Emphasis added.) In paragraph [0051], Watt discloses that infrastructure controller 202 is responsible for configuring the network infrastructure 214 and 216 surrounding a server *to provide secure, limited access to those resources required by the server and its applications,*" and "configuring all switch ports connected to the server to ensure that the server and its applications have access to the network resources that they need, and *to prevent them from accessing any restricted resources that they are not authorized to access.*" (Emphasis added.)

16. In view of the Watt disclosure relating to securing, Applicants respectfully submit that one of ordinary skill in the art would have no reason to "improve" the security of Watt by combining the Examiner's selected portions of Sheets other than hindsight based on Applicants' disclosure.

17. Applicants respectfully submit that the Examiner is still apparently ignoring the entire disclosure by Watt, and the Examiner's conclusion and subsequent statements

regarding the present rejection simply provide no advantages to the Watt invention in regard to security and preventing access to any restricted resources that a user is not authorized to access.

18. The Examiner cites *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971) for the proposition of law that it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning and as long as the hindsight reasoning takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from Applicants' disclosure, such a reconstruction is proper.

19. Applicants respectfully submit that the Examiner proffers what purports to be knowledge which was within the level of ordinary skill at the time the claimed subject matter was made by making reference to cited portions of Watt and Sheet. (See final Office Action dated December 7, 2007, page 22, lines 7-14.) It should be noted, though, that the purported "knowledge" attributable to Sheets is a mischaracterization because Sheets does not explicitly disclose "preconfiguring at least one identified server image with data and state information associated with a user."

20. Applicants respectfully submit that, at best, Sheets discloses "reconfiguring at least one identified server image with data and state information associated with a user." (See Sheets, column 15, lines 8-17.)

21. Thus, Applicants respectfully submit that with respect to the Examiner's reliance on *In re McLaughlin, supra*,

(a) the Examiner has failed to identify what knowledge was within the level of ordinary skill, and

(b) the Examiner has failed to establish that the knowledge on which the Examiner relies was not gleaned only from Applicants' disclosure so the Examiner's admitted hindsight reconstruction for this rejection would be proper.

**C. Claims 1-7 and 12-18 Are Allowable Over Watt In View Of Sheets**

1. Accordingly, independent claims 1 and 12 are allowable over Watt in view of Sheets.

2. It follows that claims 2-7 and 13-18, which respectively incorporate the features of claims 1 and 12, are each allowable over Watt in view of Sheets for at least the same reasons that their respective base claims are considered allowable over Watt in view of Sheets.

3. Thus, Applicants respectfully submit that it is only by impermissible hindsight and an unconvincing line of reasoning that the Examiner is able to reject claims 1-7 and 12-18 based on the combination of Watt and Sheets. The Examiner does not state that either Watt or Sheets expressly or impliedly suggest the claimed subject matter. Moreover, the Examiner has not presented a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of Watt and Sheets. It is only by using Applicants' disclosure as a template that the Examiner is able to select particular features of Watt and Sheets through a hindsight reconstruction of Applicants' claims to make the rejection.

4. Consequently, Applicants respectfully request that this rejection be withdrawn, and claims 1-7 and 12-18 be allowed.

**II. The Rejection Based On Watt In View Of Haun**

Applicants respectfully traverse the rejection of claims 9 and 20 as unpatentable over Watt in view of Haun. Applicants respectfully submit that the subject matter according to either of claims 9 and 20 is patentable over Watt in view of Haun.

“To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” *Ex parte Clapp*, 227 USPQ 972,

973 (Bd. Pat. App. & Inter. 1985). (See, also, MPEP §§ 706.02(j) and 2144.)

**A. The Examiner Has Not Stated That Either Watt Or Haun Expressly Or Impliedly Suggest the Claimed Subject Matter**

1. In the present rejection, the Examiner does not state that either Watt or Haun expressly or impliedly suggest the subject matter of independent claims 9 and 20.

2. Consequently, in order to support the present rejection, the Examiner's line of reasoning must be convincing as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of Watt and Haun.

**B. The Examiner Has Not Established A Convincing Line Of Reasoning As To Why An Artisan Would Have Found The Claimed Subject Matter To Have Been Obvious In Light Of The Teachings Of Watt And Haun**

1. Regarding Haun, the Examiner states that Haun discloses:  
“a network computer (NC) client boots from a boot image provided by an NC server. The boot image includes information identifying the location of one or more system volumes on the NC server that contain operating system software. In response to an attempt to modify the contents of the one or more system volumes, the NC client causes information identifying the modification to be recorded on the NC server separate from the one or more system volumes in a storage area associated with the NC client. figure 4 [sic], element 430, the NC server stores information associated with the write request in the shadow volume associated with the NC client.” (See final Office Action dated December 7, 2007, page 13, lines 1-8.)

2. From this, the Examiner concludes that Haun suggests “allocating a separate writable volume of the writable data portion’ (e.g. modifications are separate from one or more system volumes) ‘of the selected master storage image to each server allocated to the system user.” (See final Office Action dated December 7, 2007, page 13, lines 9-11.)

3. Applicants respectfully submit that this conclusion is without basis.

4. Applicants respectfully submit that the Examiner's statement and conclusion for this rejection appear to be nothing more than a reworked version of the syllogism set forth in the Office Action dated June 21, 2007, for the rejection of claims 9 and 20 as unpatentable over Watt in view of Haun.<sup>2</sup>

5. Accordingly, Applicants respectfully submit that the simplified disclosure provided by the Abstract ignores the more detailed disclosure by Haun at column 2, lines 56-59, which states "[w]hen an NC client boots from the network and accesses a stored copy of the operating system from the NC server, the user's preferences are dynamically merged with the system environment provided by the NC client."

6. Applicants respectfully submit that nothing in the more detailed disclosure of Haun indicates that the user's preferences are not allocated to more than one NC server.

7. Moreover, Applicants respectfully submit that the Examiner appears to ignore column 1, lines 54-56 of Haun, which discloses that "[t]he NC client causes information identifying the modification to be recorded on the NC server separate from one or more system volumes in a storage area associated with the NC client."

8. Applicants respectfully submit that nothing in this disclosure by Haun indicates that the storage area is a separate storage area that is allocated only to the particular NC client. That is, nothing in Haun indicates that the storage area is not allocated to more than one NC server. Haun merely discloses that the storage area is associated with the NC server.

9. Accordingly, Applicants respectfully submit that although the writable volume referred to in the portions of Haun cited by the Examiner might actually be a single writable volume that is associated with more than one NC server, the Examiner's logic does not conclude in Haun suggesting "allocating a separate writable volume of the writable data portion

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<sup>2</sup> In the present rejection, it is interesting to note that the reworked nature of the logical reasoning for the basis of the rejection of claims 9 and 20 based on Watt in view of Haun strongly suggests that the previous logic used by the Examiner was actually baseless, and that the present proffered logic is also nothing more than a recasting of the net in hope of chancing upon a convincing line of reasoning in support of the rejection based on Watt and Haun.

of the selected master storage image to each server (modification to be recorded on the NC server) allocated to the system user (client)”.

10. The Examiner responds by citing column 4, lines 35-41, of Haun and asserting that “Haun discloses multiple volumes also.” (See final Office Action dated December 7, 2007, page 24, lines 9-11.)

11. The portion of Haun cited by the Examiner for this response provides a definition of “volume” that is not inconsistent with Applicants’ assertion that writable volume referred to in the portions of Haun cited by the Examiner might actually be a single writable volume that is associated with more than one NC server.

12. Regarding the Examiner’s conclusion that that forms the rejection (see final Office Action dated December 7, 2007, page 13, lines 12-15), Applicants respectfully submit that the Examiner’s conclusion that “[i]t would have been obvious to a person of an ordinary skill in the art to have applied Haun’s disclosure above, to the system of Watt for the purpose of maintaining individual user storage areas” simply does not follow from the premise that “Watt and Haun are in the same field of endeavor as they are directed toward provisioning computer systems.” (See final Office Action dated December 7, 2007, page 13, lines 11-12.)

13. Applicants respectfully submit that it would seem that a proper conclusion based on the Examiner’s stated premises would only relate to something like Watt and Haun being in the same field of endeavor.

14. If, alternatively, the Examiner is using the conclusion based on the logic stated in the previous paragraph of the final Office Action as a premise, Applicants respectfully submit that the conclusion “to apply Haun’s disclosure of col. 2 lines 56-59, col. 1 lines 54-65, and col. 2 lines 50-55 to the system of Watt for the purpose of maintaining individual storage areas” does not follow because the logic stated in the previous paragraph of the final Office Action is without basis.

15. For this rejection, the Examiner also cites *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971) for the proposition of law that it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based

upon hindsight reasoning and as long as the hindsight reasoning takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from Applicants' disclosure, such a reconstruction is proper.

16. Applicants respectfully note that the Examiner proffers what purports to be knowledge which was within the level of ordinary skill at the time the claimed subject matter was made by making reference to cited portions of Watt and Sheet. (See final Office Action dated December 7, 2007, page 24, line 18, through page 25, line 6.)

17. Applicants respectfully submit that the purported "knowledge" attributable to Haun is a mischaracterization because the actual disclosure of Haun (which the Examiner appears to ignore by citing and relying on the Abstract of Haun) does not disclose or suggest "allocating a separate writable volume of the writable data portion of the selected master storage image to each server (modification to be recorded on the NC server) allocated to the system user (client)". (See final Office Action dated December 7, 2007, page 25, lines 6-8.)

18. Thus, Applicants respectfully submit that with respect to the Examiner's reliance on *In re McLaughlin*, *supra*,

(a) the Examiner has failed to identify what knowledge was within the level of ordinary skill, and

(b) the Examiner has failed to establish that the knowledge on which the Examiner relies was not gleaned only from Applicants' disclosure so the Examiner's admitted hindsight reconstruction for this rejection would be proper.

19. Thus, Applicants respectfully submit that it is only by impermissible hindsight and an unconvincing line of reasoning that the Examiner is able to reject claims 9 and 20 based on the proffered combination of Watt and Haun. The Examiner does not state that either Watt or Haun expressly or impliedly suggest the claimed subject matter. Moreover, the Examiner has not presented a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of Watt and Haun. It is only by using Applicants' disclosure as a template that the Examiner is able to select particular

features of Watt and Haun through a hindsight reconstruction of Applicants' claims to make the rejection.

20. Consequently, Applicants respectfully request that this rejection of claims 9 and 20 be withdrawn, and claims 9 and 20 be allowed.

### **III. The Rejection Based On Watt in view of Haun, and further in view of Sheets**

Applicants respectfully traverse the rejection of claims 10, 11, 21 and 22 as unpatentable over Watt in view of Haun, and further in view of Sheets. Applicants respectfully submit that the subject matter according to any of claims 10, 11, 21 and 22 is patentable over Watt in view of Haun, and further in view of Sheets.

A. In particular, Applicants respectfully submit that the respective syllogisms that the Examiner uses as a basis for combining Watt, Haun and Sheets for rejecting claims 10, 11, 21 and 22 still do not cure the (1) deficiencies in the logic and (2) the syllogism used by the Examiner for rejecting claims 9 and 20, the respective base claims of claims 10 and 11, and claims 21 and 22.

B. Consequently, Applicants respectfully request that the rejection of claims 10, 11, 21 and 22 be withdrawn, and claims 10, 11, 21 and 22 be allowed.

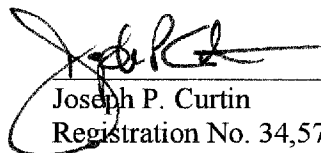
### **CONCLUSION**

In view of the above arguments, it is urged that the present application is in condition for allowance.

It is requested that this application be passed to issue with claims 1-7, 9-18 and 20-22.

Respectfully submitted,

Date: March 7, 2008



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## CLAIMS APPENDIX

1. (previously presented) A method of allocating storage to a system user of a storage area network, the storage area network including storage and a plurality of servers accessing the storage, the method comprising:

identifying at least one master storage image that is stored in the storage of the storage area network and that will be associated with a system user when a server is allocated to the system user;

pre-configuring at least one identified master storage image with data and state information that is associated with a system user;

generating a plurality of replicas of each identified master storage image prior to at least one server being allocated to the system user; and

allocating a selected replica of the plurality of replicas of the master storage image to each server allocated to the system user.

2. (previously presented) The method according to claim 1, further comprising:  
de-allocating an allocated replica from the system user each time a server is de-allocated from the system user; and

assigning the de-allocated replica to a pool of de-allocated replicas.

3. (original) The method according to claim 2, wherein the pool of de-allocated replicas is configured to automatically scrub all replicas in the pool of de-allocated replicas asynchronously from de-allocation the step of de-allocation.

4. (original) The method according to claim 3, wherein the pool of de-allocated replicas is scrubbed when a number of de-allocated replicas assigned to the pool of de-allocated replicas equals a predetermined number.

5. (original) The method according to claim 3, wherein the pool of de-allocated

replicas is automatically scrubbed by reformatting.

6. (original) The method according claim 1, wherein each replica is a logical volume.

7. (original) The method according to claim 1, wherein the system user is one of a customer and an application.

8. (canceled)

9. (previously presented) A method of allocating storage between system users of a storage area network, the storage area network including storage and a plurality of servers accessing the storage, the method comprising:

identifying at least one master storage image that is stored in the storage of the storage area network and that will be associated with a system user, a selected master storage image including both a read-only data portion and a writeable data portion;

generating a read-only copy of the read-only data portion of the selected master storage image;

sharing the read-only data copy of the read-only data portion of the selected master storage image across the plurality of servers;

allocating the read-only copy of the read-only data portion of the selected master storage image to each server allocated to the system user; and

allocating a separate writable data volume of the writable data portion of the selected master storage image to each server allocated to the system user.

10. (previously presented) The method according to claim 9, further comprising:  
de-allocating the read-only copy of the read-only data portion of the selected master image from the server to which the read-only copy was allocated when the server is de-

allocated from the system user; and

de-allocating the writable data volume of the writable data portion of the selected master storage image that was allocated to the de-allocated server.

11. (previously presented) The method according to claim 10, wherein de-allocating the writable data volume includes the steps of:

assigning the de-allocated writable data volume to a pool of de-allocated writable data volumes; and

scrubbing any writable data volumes assigned to the pool of de-allocated writable data volumes asynchronously from the step of de-allocating the writable data volume.

12. (previously presented) A storage area network, comprising:

a plurality of servers coupled to a storage; and

a storage provisioning device coupled to the servers and allocating at least one server and a portion of the storage to a system user, the storage provisioning device identifying at least one master storage image that is stored in the storage and that will be associated with a system user when a server is allocated to the system user, at least one master storage image being pre-configured with data and state information that is associated with a system user, the storage provisioning device further generating a plurality of replicas of each identified master storage image prior to at least one server being allocated to the system user; and allocating a selected replica of the plurality of replicas of the master storage image to each server allocated to the system user.

13. (original) The storage area network according to claim 12, wherein the storage provisioning device de-allocates an allocated replica from the system user each time a server is de-allocated from the system user removes a server, and assigns the de-allocated replica to a pool of de-allocated replicas.

14. (original) The storage area network according to claim 13, wherein the pool of de-allocated replicas automatically scrubs all replicas in the pool of de-allocated replicas asynchronously from de-allocation the step of de-allocation.

15. (original) The storage area network according to claim 14, wherein the pool of de-allocated replicas is scrubbed when a number of de-allocated replicas assigned to the pool of de-allocated replicas equals a predetermined number.

16. (original) The storage area network according to claim 14, wherein the pool of de-allocated replicas is automatically scrubbed by reformatting.

17. (original) The storage area network according claim 12, wherein each replica is a logical volume.

18. (original) The storage area network according to claim 12, wherein the system user is one of a customer and an application.

19. (canceled)

20. (previously presented) A storage area network, comprising:  
a plurality of servers coupled to a storage; and  
a storage provisioning device coupled to the servers and allocating at least one server and a portion of the storage to a system user, the storage provisioning device identifying at least one master storage image that is stored in the storage of the storage area network and that will be associated with a system user, a selected master storage image including both a read-only data portion and a writeable data portion, the storage provisioning device further generating a read-only copy of the read-only portion of the selected master storage image and sharing the read-only copy of the read-only portion of the selected master storage image across the plurality

of servers, allocating the read-only copy of the read-only portion of the selected master storage image to each server allocated to the system user, and allocating a separate writable data volume of the writable data portion of the selected master storage image to each server allocated to the system user.

21. (previously presented) The storage area network according to claim 20, wherein the storage provisioning device de-allocates the read-only copy of the read-only portion of the selected master image from the server to which the read-only copy was allocated when the server is de-allocated from the system user, and de-allocates the writable data volume allocated to the server that has been de-allocated.

22. (original) The storage area network according to claim 21, wherein when the storage provisioning device de-allocates the writable data volume, assigns the de-allocated writable data volume to a pool of de-allocated writable data volumes and scrubs any writable data volumes assigned to the pool of de-allocated writable data volumes asynchronously from when the storage provisioning device de-allocates the writable data volume.

## **EVIDENCE APPENDIX**

No Additional Evidence Submitted

## **RELATED PROCEEDINGS APPENDIX**

No related proceedings